

In the Claims:

1. A method of providing a low cost quantized nonlinear continuous coefficient curve scaler comprising the steps of:

5 providing a quantized coefficient table representing an approximation of the nonlinear continuous curve ;

applying said table in hardware to locate the coefficients in the table; and

applying the coefficients to a scaling pipeline to get scaled data.

10 2. The method of Claim 1 wherein the nonlinear curve approximation in the table must remain symmetrical about its centerline.

3. The method of Claim 2 wherein to maintain this symmetry the following rules are followed: the sampled data must be consistent, the quantization points must be
15 consistent, the coefficient curve must be symmetric about its centerline, and the quantization values must be selected so that the sum of all coefficient values in the coefficient curve over all the source points for a given resultant point is always equal to a normalization value.

20 4. The method of Claim 1 wherein said applying step includes applying said table in hardware using a step counter to locate the coefficients in the table.

5. The method of Claim 3 wherein said applying step includes applying said table in hardware using a step counter to locate the coefficients in the table.

25 6. The method of Claim 5 wherein said nonlinear curve is $\sin(x)/x$.

7. The method of Claim 1 wherein said providing step includes generating said quantized coefficient table.

8. The method of Claim 7 wherein said generating step includes a register, a counter and an adder.

9. The method of Claim 8 wherein said register would have a value loaded therein determined by dividing the source image size by the destination image size.

10. A quantized nonlinear curve scaler comprising:

a series of latches for latching a stream of source data wherein the content of the latches is the source data elements;

a shift and add multiplier comprising a first adder and a shifter for shifting and adding contents of each latch by coefficients provided by a quantized coefficient table representing an approximation of a nonlinear continuous curve to produce coefficient products of the source data elements and

and a second adder for summing coefficient products from the series of latches to provide the resultant data value.

11. The scaler of Claim 10 wherein said table is generated by the method of representing an approximation of the nonlinear continuous curve and wherein the following rules are followed: the sampled data must be consistent, the quantization points must be consistent, the coefficient curve must be symmetric about its centerline, and the quantization values must be selected so that the sum of all coefficient values in the coefficient curve over all the source points for a given resultant point is always equal to the normalization value.